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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,832	01/17/2002	Yong-Jun Kim	401461	5906
23548	7590	10/18/2004	EXAMINER	
LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			DONG, DALEI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

10/046,832

Applicant(s)

KIM ET AL.

Examiner

Dalei Dong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12 and 14-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12 and 14-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 20 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 20 and 28, the phrase "approximately" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "approxmiately"), thereby rendering the scope of the claim(s) unascertainable.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12 and 14-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,373,195 to Whang in view of U.S. Patent No. 6,498,430 to Sakai.

Regarding to claim 12, Whang discloses in Figure 3, a rear substrate (21); a front substrate (22) spaced from the rear substrate and forming a discharge space between the

rear and front substrates; partition walls (30 and 31) between the front and rear substrate and including continuous main partition walls ( $30_1$ ,  $30_2$ ,  $30_3$ , ...) parallel to each other, having the same width, and arranged in stripes spaced from each other, and auxiliary partition walls ( $31_1$ ,  $31_2$ ,  $31_3$ ,  $31_4$ ,  $31_5$ , ...) transverse to and connected to respective pairs of the main partition walls, each auxiliary partition wall having a uniform width and respective pairs of the auxiliary partition walls defining and surrounding respective red, green, and blue discharge cells having coatings of respective fluorescent substance respectively producing red, green, and blue light, address electrodes (29) on the rear substrate and parallel to the auxiliary partition walls, at least some of the auxiliary partition walls being disposed directly opposite address electrodes, and pairs of first and second electrodes ( $33_1$  and  $33_2$ ) disposed on respective pairs of main partition walls and extending in a direction crossing the address electrodes.

However, Whang does not disclose wherein different auxiliary partition walls having respective, different widths and the discharge cells have respective areas differing in accordance with ratios of efficiencies of light radiation by the respective fluorescent substances, the varying areas of the discharge cells being determined by respective widths of respective pairs of the auxiliary partition walls defining respective discharge cells.

Sakai teaches in Figures 1 and 5, different auxiliary partition walls having respective, different widths and the discharge cells have respective areas differing in accordance with ratios of efficiencies of light radiation by the respective fluorescent substances, the varying areas of the discharge cells being determined by respective

widths of respective pairs of the auxiliary partition walls defining respective discharge cells (see column 3, line 62 to column 4, line 17).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have construct the auxiliary partition walls of Whang with varied width in accordance with ratios of efficiencies of Sakai in order to provide a plasma display device which is capable of producing different colors having uniform maximum luminance to display natural full-color images.

Regarding to claim 14, Sakai teaches the areas of discharge cells are inversely proportional to the ratio of efficiencies of light radiation of the respective fluorescent substances of red, green, and blue discharge cells (see column 4, lines 24-37) and the motivation to combine is the same as above.

Regarding to claim 15, Sakai teaches the blue discharge cell has a larger area than the areas of the red and green discharge cells (see column 4, lines 24-37) and the motivation to combine is the same as above.

Regarding to claim 16, Whang discloses in Figure 3, the first and second electrodes (33<sub>1</sub> and 33<sub>2</sub>) do not cover the discharge cells, and including first, second, and third transparent electrodes (32<sub>1</sub>, 32<sub>2</sub> and 32<sub>3</sub>) extending from the first and second electrodes over at least parts of the red, green and blue discharge cells respectively (see column 4, lines 5-20).

Regarding to claim 17, Whang discloses in Figure 13, the area of the first and second and third electrodes differ in accordance with the ratios of efficiencies of light radiation by the respective fluorescent substances of the red, green, and blue discharge cells where the first, second, and third transparent electrodes are respectively disposed (see column 9, lines 8-21).

Regarding to claim 18, Whang discloses in Figure 13, the areas of the first, second and third transparent electrodes are inversely proportional to the ratios of efficiencies of light radiation of the respective fluorescent substances of the red, green and blue discharge cells.

Regarding to claim 19, Whang discloses in Figure 13, the area of the third transparent electrode disposed partially over the blue discharge cell is larger than the areas of the first and second transparent electrodes.

Regarding to claim 20, Whang discloses in Figure 13, the areas of the first, second, and third transparent electrodes are in a ratio of 0.82:0.91:1, and Examiner interprets 0.82:0.91:1 "approximately" equals to 0.65-0.7:0.9:1.

Regarding to claim 21, Whang discloses in Figure 3, a plasma display panel comprising: a rear substrate (21); a front substrate (22) spaced from the rear substrate and

forming a discharge space between the rear and front substrates; partitions walls (30 and 31) between the front and rear substrates and including continuous main partition walls (30<sub>1</sub>, 30<sub>2</sub>, 30<sub>3</sub>, ...) parallel to each other, having the same width, and arranged in stripes spaced from each other, and auxiliary partition wall portions (31<sub>1</sub>, 31<sub>2</sub>, 31<sub>3</sub>, 31<sub>4</sub>, 31<sub>5</sub>, ...) transverse to and connected to respective pairs of the main partition walls, the auxiliary wall portions being parallel and arranged in a staggered pattern so that at least one pair of auxiliary wall portions connected to opposite sides of one of the main partition walls are not aligned, each auxiliary partition wall portion having a uniform width, and respective pairs of the auxiliary partition walls defining and surrounding respective red, green, and blue discharge cells having coatings of respective fluorescent substance respectively producing red, green, and blue light, address electrodes (29) on the rear substrate and parallel to the auxiliary partition walls, at least some of the auxiliary partition walls being disposed directly opposite address electrodes, and pairs of first and second electrodes (33<sub>1</sub> and 33<sub>2</sub>) disposed on respective pairs of main partition walls and extending in a direction crossing the address electrodes.

However, Whang does not disclose wherein different auxiliary partition walls having respective, different widths and the discharge cells have respective areas differing in accordance with ratios of efficiencies of light radiation by the respective fluorescent substances, the varying areas of the discharge cells being determined by respective widths of respective pairs of the auxiliary partition walls defining respective discharge cells.

Sakai teaches in Figures 1 and 5, different auxiliary partition walls having respective, different widths and the discharge cells have respective areas differing in accordance with ratios of efficiencies of light radiation by the respective fluorescent substances, the varying areas of the discharge cells being determined by respective widths of respective pairs of the auxiliary partition walls defining respective discharge cells (see column 3, line 62 to column 4, line 17).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have construct the auxiliary partition walls of Whang with varied width in accordance with ratios of efficiencies of Sakai in order to provide a plasma display device which is capable of producing different colors having uniform maximum luminance to display natural full-color images.

Regarding to claim 22, Sakai teaches the areas of discharge cells are inversely proportional to the ratio of efficiencies of light radiation of the respective fluorescent substances of red, green, and blue discharge cells (see column 4, lines 24-37) and the motivation to combine is the same as above.

Regarding to claim 23, Sakai teaches the blue discharge cell has a larger area than the areas of the red and green discharge cells (see column 4, lines 24-37) and the motivation to combine is the same as above.



Regarding to claim 24, Whang discloses in Figure 3, the first and second electrodes (33<sub>1</sub> and 33<sub>2</sub>) do not cover the discharge cells, and including first, second, and third transparent electrodes (32<sub>1</sub>, 32<sub>2</sub> and 32<sub>3</sub>) extending from the first and second electrodes over at least parts of the red, green and blue discharge cells respectively (see column 4, lines 5-20).

Regarding to claim 25, Whang discloses in Figure 13, the area of the first and second and third electrodes differ in accordance with the ratios of efficiencies of light radiation by the respective fluorescent substances of the red, green, and blue discharge cells where the first, second, and third transparent electrodes are respectively disposed (see column 9, lines 8-21).

Regarding to claim 26, Whang discloses in Figure 13, the areas of the first, second and third transparent electrodes are inversely proportional to the ratios of efficiencies of light radiation of the respective fluorescent substances of the red, green and blue discharge cells.

Regarding to claim 27, Whang discloses in Figure 13, the area of the third transparent electrode disposed partially over the blue discharge cell is larger than the areas of the first and second transparent electrodes.

Regarding to claim 28, Whang discloses in Figure 13, the areas of the first, second, and third transparent electrodes are in a ratio of 0.82:0.91:1, and Examiner interprets 0.82:0.91:1 “approximately” equals to 0.65-0.7:0.9:1.

### ***Response to Arguments***

5. Applicant's arguments filed September 7, 2004 have been fully considered but they are not persuasive.

In response to Applicant's argument that Sakai reference fails to teach or suggest the areas of the discharge cells are made different. Examiner asserts that Sakai reference clearly states that the size of each discharge cell or light-emitting cells is adjusted by adjusting the width of the openings with different thickness of partition walls for each discharge cell (see column 3, line 62 to column 4, lines 17). Thus, Examiner asserts that the Sakai reference teaches the claimed invention and maintains the rejection.

Also, in response to Applicant's argument that Figure 2 of Sakai, the walls have the same width but the pitch of the grooves is made variable unlike the structure shown in Sakai's Figure 1. Examiner asserts that Figure 2 of Sakai merely teaches a different method of adjust the area or openings of the discharge cell (see column 4, lines 37-40). Thus, Examiner asserts that the Sakai reference teaches the claimed invention and maintains the rejection.

Further, in response to Applicant's argument that Sakai fails to teach or suggest what walls are made of different width in the structure. Examiner asserts that Sakai teaches varying the width of the partition walls and not concerned with which wall the

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width is changed as long as the area of the discharge cell is changed accordingly.

Therefore, Examiner interprets that the varying the width of the partition walls can be applied to either auxiliary partition walls as well as main partition walls. Thus, it would have been obvious to one having ordinary skill in the art to varying the auxiliary partition walls of Whang in accordance to the teaching of Sakai. Thus, Examiner asserts that the prior art of record teaches the claimed invention and maintains the rejection.

Furthermore, in response to Applicant's argument that prior art of record fails to teach or suggest additional arrangements in terms of the areas of the transparent electrodes and their arrangement with respect to particular discharge cells, Examiner asserts that Whang reference discloses the claimed invention as shown in the rejection above and thus Examiner maintains the rejection.

Finally, in response to Applicant's argument that claims 20 and 28 include numerical limitations have not shown to be obvious nor to be optimizations, Examiner asserts that the areas of the first, second, and third transparent electrodes in Whang reference are in a ratio of 0.82:0.91:1, and Examiner interprets 0.82:0.91:1 "approximately" equals to 0.65-0.7:0.9:1.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art are cited to further show the state of the art of composition of a plasma display panel.

U.S. Patent No. 6,157,354 to Amemiya.

U.S. Patent No. 6,392,344 to Hong.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571)272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.D.  
October 6, 2004

  
Joseph Williams  
Primary Examiner  
Art Unit 2879